WHAT IS CLAIMED IS:

1. A method of measuring chlorine content in a solution, said method comprising the steps of:

(a) modifying a solution comprising chlorine and water to contain a proton donating compound, without lowering the pH of said solution to the acid range and

(b) measuring the concentration of chlorine in said solution.

2. The method according to claim 1, wherein said solution is modified electrochemically.

3. The method according to claim 1, wherein said modifying step comprises mixing said solution with a proton donating compound.

4. The method according to claim 1, wherein said proton donating compound is a non-nutritive reagent.

5. The method according to claim 3, wherein said proton donating compound is a bicarbonate or borate salt.

6. The method according to claim 5, wherein said bicarbonate salt is sodium bicarbonate.

7. The method according to claim 6, wherein the pH of said aqueous solution comprising chlorine and sodium bicarbonate in step (b) is about 8.8.

8. The method according to claim 5, wherein said borate salt is sodium tetraborate decahydrate.

9. The method according to claim 8, wherein the pH of said aqueous solution comprising chlorine and sodium tetraborate decahydrate in step (b) is about 8.7.

10. The method according to claim 1, wherein said chlorine form is selected from free forms OCl^- or $HOCl^-$.

11. The method according to claim 1, wherein the concentration of chlorine is measured electrochemically.

12. A method of measuring total chlorine content in an aqueous solution, said method comprising the steps of:

(a) adding an iodide salt to an aqueous solution which comprises chlorine and an amine, wherein said chlorine is present in said aqueous solution as free and combined chlorine, and whereby said salt reacts with any chlorine,

(b) modifying the aqueous solution to contain a proton donating compound without lowering the pH of said solution to the acid range, and

(c) measuring the concentration of chlorine in said solution indirectly by measuring the iodine produced by reaction of iodide with chlorine.

13. The method according to claim 12, wherein said aqueous solution of step (a) comprises a mixture of amines.

14. The method according to claim 12, wherein the amine is ammonia.

15. The method according to claim 12, wherein said proton donating compound is a non-nutritive reagent.

16. The method according to claim 15, wherein said proton donating compound is a bicarbonate or borate salt.

17. The method according to claim 16, wherein said bicarbonate salt is sodium bicarbonate.

18. The method according to claim 16, wherein said borate salt is sodium tetraborate decahydrate.

19. The method according to claim 12, wherein the chlorine concentration in said aqueous solution is measured electrochemically.

20. The method according to claim 12, where the combined form of chlorine is selected from NH_2Cl, $NHCl_2$, NCl_3.

21. The method according to claim 12, wherein said iodide salt is selected from potassium iodide, lithium iodide, and sodium iodide.

22. The method according to claim 12, wherein the pH of said solution is about 8.7 to about 10.

23. The method according to claim 12, wherein the pH of said solution is about 7.

24. A stable aqueous reagent solution useful in automated chlorine analyzers, which comprises:

(a) sodium bicarbonate;

(b) a base in an amount sufficient to increase the pH to above about 9.0 without significantly affecting the ability of the sodium bicarbonate to donate protons when mixed with a chlorine solution; and

(c) water.

25. The reagent solution according to claim 24, wherein the sodium bicarbonate is present at a 1 molar concentration.

26. The reagent solution according to claim 24, wherein said base is sodium hydroxide.

27. The reagent solution according to claim 24, wherein the pH of said solution is in the range of 8.8 to 9.3.

28. A stable aqueous reagent solution useful in automated chlorine analyzers comprising an aqueous solution, which comprises:

(a) sodium tetraborate decahydrate;

(b) water; and

(c) sufficient acid to adjust the pH of said solution to about 6.8.

29. Apparatus for detecting the level of chlorine in a water sample, comprising:

a chlorine detector; and

a cartridge having a solid proton donating compound, an inlet port connected to a supply of the water sample, and an outlet port in communication with said chlorine detector;

said inlet port being spaced from said outlet port so that the sample water received by said cartridge via said inlet port flows through and dissolves said solid proton donating compound before exiting through said outlet port and into

said chlorine detector, whereby said automated chlorine detector is supplied via said cartridge with the water sample having said proton donating compound dissolved therein.

30. An apparatus according to claim 29, further comprising a solenoid valve controlled by said chlorine detector and in communication with said outlet port of said cartridge to control the supply of the water sample and dissolved proton donating compound flowing from said outlet port of said cartridge to said automated chlorine detector.

31. An apparatus according to claim 29, wherein said cartridge is elongate and has opposite ends, and wherein said inlet port is located adjacent to one of said ends and said outlet is located adjacent to the other of said ends.

32. An apparatus according to claim 29, wherein the proton donating compound is a bicarbonate salt.

33. An apparatus according to claim 29, wherein the proton donating compound is a borate salt.

34. A method of detecting chlorine in an automated chlorine detector using the apparatus according to claim 29, comprising the steps of

permitting sample water to flow through the solid proton donating compound in the cartridge, thereby dissolving the proton donating compound in the sample water;

permitting the sample water mixed with the dissolved proton donating compound to flow into the automated chlorine detector; and

detecting chlorine levels in the sample.

35. The method according to claim 34, wherein the flow of the mixed sample water into the automated chlorine detector is regulated by a solenoid valve.

36. Apparatus for detecting the level of chlorine in a water sample, comprising:

an automated chlorine detector having a sample inlet chamber and a mixing chamber;

a standpipe for containing a predetermined amount of the water sample such that the predetermined amount of the water sample defines a water sample level and a head space in said standpipe, said standpipe having a water sample supply port connected to a supply of the water sample, a first outlet port located below said water sample level in said standpipe, and a second outlet port which is located at said water sample level and is in fluid communication with said sample inlet chamber of said automated chlorine detector; and

a cartridge containing a solid proton donating compound and having an inlet port in fluid communication with said first outlet port of said standpipe and an outlet port in fluid communication with said mixing chamber of said automated chlorine detector, said inlet and outlet ports of said cartridge being spaced apart and said cartridge being larger in volume than said standpipe.

37. An apparatus according to claim 36, further comprising a path of flow of iodide solution into said standpipe to permit an addition of iodide to the sample water in the standpipe.

38. An apparatus according to claim 36, wherein the proton donating compound is a bicarbonate salt.

39. An apparatus according to claim 36, wherein the proton donating compound is a borate salt.

40. A method of detecting chlorine in an automated chlorine detector using the feed system of claim 36, comprising the steps of

permitting sample water fill the standpipe to a level above the second outlet port of the standpipe, while leaving sufficient head space;

permitting the sample water to flow through the first tube into the cartridge, providing mixing of sample water and the proton donating compound;

permitting the mixed sample water and proton donating compound to flow through the second tube into the mixing chamber of the automated chlorine detector; and

detecting chlorine levels in the sample.

41. The method according to claim 40, wherein the flow of the mixed sample water into the automated chlorine detector is regulated by adjusting the sample water level in the cartridge.

42. The method according to claim 40, further comprising adding iodide solution to the sample water in the standpipe.

43. The method according to claim 42, wherein the flow of iodide solution to the sample water is intermittent.

44. The method according to claim 42, wherein the flow of iodide solution and sample water is intermittently interrupted.